CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD

CLEAN WATER ACT SECTIONS 305(b) AND 303(d) INTEGRATED REPORT

FOR THE CENTRAL COAST REGION

PUBLIC REVIEW DRAFT

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Adopted by the
California Regional Water Quality Control Board
Central Coast Region
on _____, 200x

Approved by the
State Water Resources Control Board
on _____, 200x

and the
United States Environmental Protection Agency
on _____, 200x

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List of Acronyms and Abbreviations

This report contains numerous acronyms and abbreviations. The following alphabetical list of acronyms/abbreviations used in this report is provided for the convenience of the reader:

CalWQA	California Water Quality Assessment
CCAMP	Central Coast Ambient Monitoring Program
CCRWQCB	Central Coast Regional Water Quality Control Board
CCWQP	Central Coast Water Quality Protection Irrigated Agriculture Monitoring Program
CWA	Clean Water Act
DPH	Department of Public Health
DPR	Department of Pesticide Regulation
LOE	Lines of Evidence
NNE	Nutrient Numeric Endpoints
SWRCB	State Water Resources Control Board
SWAMP	Surface Water Ambient Monitoring Program
TMDL	Total Maximum Daily Load
USEPA	U.S. Environmental Protection Agency

EXECUTIVE SUMMARY

This Integrated Report provides the draft recommendations of staff of the California Regional Water Quality Control Board, Central Coast Region (Central Coast Water Board) for changes to the Clean Water Act Section 303(d) List of Impaired Waterbodies and provides a draft Clean Water Act Section 305(b) report on the water quality condition of waters within the Central Coast Region. This report provides an overview of the approach and describes the public process that the Central Coast Water Board will use for adoption of the changes to the List of impaired waterbodies and finalization of the Integrated Report. The report also describes data sources used, the objectives and criteria, the methodology for comparing the available data to the criteria to assess attainment of water quality standards and determine potential impaired waterbodies, and the methodology used to categorize waterbody segments according to beneficial use support.

In response to a formal data solicitation in December 2006, Water Board staff received data submittals from 18 sources through January 2007. Using this data, staff assessed 345 water bodies (including 77 beaches and 6 harbors) of the Central Coast region's 818 waterbodies to produce more than 3700 fact sheets and 11,500 lines of evidence that describe the water quality condition and relative impairment of waters in the Central Coast Region. A fact sheet contains the final listing decision, the weight of evidence description and all associated lines of evidence. Each line of evidence provides a piece of information to support the final listing decision and is specific to a data source, pollutant, beneficial use and water quality criteria.

Staff proposes 689 listings (addition of a waterbody and its impairing pollutant) and 51 de-listings (removal of a waterbody and its impairing pollutant due to resolution of the impairment). Approximately 500 of these listings are new since the last listing cycle in 2006. These recommended listings and delistings make up the List of Impaired Waterbodies which is the portion of the Integrated Report required by Clean Water Act Section 303(d).

Results of the assessment indicate that nearly 70% of the listings occur in 4 of the 13 Central Coast Region Hydrologic Units, including: Salinas River (168 listings), South Coast (117 listings, Santa Barbara County south coastal watersheds), Pajaro River (110 listings), and Santa Maria (89 listings). Evaluating the listings by pollutants, approximately 15% are bacteria listings, 13% are pesticide listings, and 11% are nutrient listings. Furthermore, staff identified agriculture and urban storm water as the potential source for a majority of the listings. Nearly 60% of the listings identified agriculture as one of the potential sources and 41% identified urban storm water as one of the potential sources. Thirty-four percent of the listings identified both agriculture and urban storm water as a potential source. In addition, staff identified grazing as one of the potential sources for 31% of the listings. Results are briefly summarized and discussed following descriptions of the methodology, and shown in detail in the appendices.

Pursuant to Clean Water Act Section 305(b), staff categorized 329 waterbody segments into one of five beneficial use support categories based on the assessment of the available water quality data. Each category describes a level of beneficial use support from fully supporting all beneficial uses to not supporting any beneficial uses. Staff did not identify any waterbodies in Category 1, meaning none of the waterbodies assessed had sufficient evidence to demonstrate full support of all six core beneficial uses. Staff identified 76 waterbody segments in Category 2, indicating no documented impairment and supporting at least one core beneficial use (or "Fully Supporting"). Category 3 includes 71 waterbody segments, which did not exceed standards, but lacked adequate data to determine overall attainment of beneficial uses. Categories 4 and 5

include waterbodies that have sufficient evidence to indicate impairment. Staff identified 7 Category 4A waterbodies which are listed as impaired, but already had TMDLs for all listed impairments ("Not Supporting but TMDL not needed"). Staff identified 175 waterbody segments in Category 5 ("Not Supporting and TMDL needed").

The Central Coast Water Board must approve changes to the 2008 List of Impaired Waterbodies, after consideration of public comment. Staff will then submit the updated List of Impaired Waterbodies to the State Water Board and finally to USEPA for approval before becoming final. Water Board staff scheduled a public workshop for April 22, 2009 and interested parties have an opportunity to submit written comments during the 45-day comment period from April 10, 2009 to May 26, 2009. Water Board staff will present a revised draft staff report to the Central Coast Water Board for potential adoption in July 2009.

INTRODUCTION

Clean Water Action Section 303(d) and 305(b) Requirements

The federal Clean Water Act (CWA) gives states the primary responsibility for protecting and restoring water quality. In California, the State Water Resources Control Board (State Water Board) and nine Regional Water Quality Control Boards (Water Boards) are the agencies with the primary responsibility for implementing federal CWA requirements, including developing and implementing programs to achieve water quality standards. Water quality standards include designated beneficial uses of waterbodies, criteria or objectives (numeric or narrative) which are protective of those beneficial uses, and policies to limit the degradation of water bodies. The water quality standards for waterbodies in the Central Coast Region are primarily contained in the Water Quality Control Plan for the Central Coast Basin or "Basin Plan" (CCRWQCB 1994; 1995).

CWA Section 305(b) requires each state to report biennially to the United States Environmental Protection Agency (USEPA) on the water quality condition of its waters. CWA Section 303(d) requires each State to develop, update, and submit to the USEPA a list of those waterbodies that are "impaired or threatened"- meaning not meeting, or not expected to meet, water quality standards. Waterbodies on the List of Impaired Waterbodies (also referred to as the 303(d) List) must be addressed through the development of Total Maximum Daily Loads (TMDLs) or by other means as described in the State's Water Quality Control Policy of Addressing Impaired Waters (SWRCB, 2005).

In conformance with USEPA guidance (USEPA, 2005), the Water Boards are preparing a single state-wide Integrated Report that meets the reporting requirements of CWA sections 303(d) and 305(b). The proposed changes to the List of Impaired Waterbodies (see Appendix A) were developed by Central Coast Water Board staff in conformance with the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (Listing Policy; SWRCB, 2004), which describes the requirements for developing the California List of Impaired Waterbodies. Not all of the Listing Policy requirements are reiterated in this report, but key requirements are mentioned in the context of explaining the methodology used.

Beneficial Use Support Categories

In order to meet CWA Section 305(b) requirements of reporting on the water quality condition of waters, Water Board staff assigned each waterbody segment to one of five non-overlapping, overall beneficial use-support categories based on the assessment of the available water quality data relative to water quality objectives, criteria, and guidelines. Then, for each waterbody segment assessed, Water Board staff determined a beneficial use support rating of fully supporting, not supporting, or insufficient information, for each of six "core" beneficial uses; aquatic life, drinking water supply, fish consumption, non-contact recreation, shell fishing, and swimming. Finally, Water Board staff assigned each waterbody segment to one of the Integrated Report beneficial use categories identified below, based on USEPA guidance and California's 303(d) Listing Policy:

Category	Description
1	Evidence shows all core uses supported;
2	Evidence shows some core uses supported (at least 1);
3	Evidence is insufficient to make use support determinations.
4A	Evidence shows at least one use not supported (but a TMDL is not needed). A TMDL has been developed and approved by USEPA and is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified time frame.
4B	Evidence shows at least one use not supported (but a TMDL is not needed). An existing regulatory program is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified timeframe.
4C	Evidence shows at least one use not supported (but a TMDL is not needed). Impairment caused by non-pollutant sources. No provision for this exists in California.
5	Evidence shows at least one use not supported (and a TMDL is needed).

Public Review and Formal Adoption of the List of Impaired Waterbodies

Category lists 4A, 4B and 5 represent the 303(d) List of Impaired Waterbodies in the Central Coast region, and thus require public review and approval by the Central Coast Water Board. Once the changes to the List of Impaired Waterbodies in the Central Coast Region are approved by the Board, the 2008 Integrated Report for the Central Coast Region, including proposed changes to the List of Impaired Waterbodies will be submitted to the State Water Board. Once the changes to the List of Impaired Waterbodies for all nine Regions are approved by the State Water Board, California's 2008 Integrated Report will be submitted by the State Water Board to the USEPA, which has final approval authority over the changes to the List of Impaired Waterbodies. California's current List of Impaired Waterbodies list was adopted by the State Water Board and the USEPA in 2006.

Public participation is an important part of the Integrated Report. The process includes a public workshop, a public comment period, and a public hearing. Water Board staff scheduled a public workshop for April 22, 2009. The purpose of the workshop is to provide information to and solicit comments from interested parties regarding the Draft 2008 Integrated Report. In addition, interested parties also have an opportunity to submit written comments during the 45-day comment period from April 10, 2009 to May 26, 2009. Staff will incorporate public comments into the Draft 2008 Integrated Report, and present that report to the Central Coast Water Board for approval at a subsequent public hearing, tentatively scheduled for July 2009. Upon Board approval, staff will forward the 2008 Integrated Report to the State Water Board for consideration in the development and approval of the statewide 2008 Integrated Report.

DATA AND INFORMATION USED FOR THE ASSESSMENT

In December 2006, the State Water Board solicited all readily available data from the public by issuing a formal solicitation notification (Appendix I). Staff received data submittals from 18 sources through January 2007. As part of the 2008 Integrated Report, staff reviewed and assessed data from the following sources:

- Central Coast Ambient Monitoring Program (CCAMP)
- Central Coast Water Quality Protection Irrigated Agriculture Monitoring Program (CCWQP)
- Surface Water Ambient Monitoring Program (SWAMP)
- Other State Agencies
    - Department of Pesticide Regulation (DPR)
    - Department of Public Health (DPH)
- County Agencies
    - AB 411 beach monitoring data (Santa Cruz, Monterey, San Luis Obispo and Santa Barbara Counties)
    - County of Santa Cruz Environmental Health watershed data
- City Agencies
    - City of Watsonville
    - City of Santa Maria
- Grant Project Data
    - California State University, Monterey Bay (Central Coast Watershed Studies)
    - University of California, Santa Cruz (Dr. Marc Los Huertos)
    - University of California, Berkley (Dr. Don Weston)
- Citizen Monitoring Data
    - Monterey Bay National Marine Sanctuary Citizens Monitoring Network
    - Coastal Watershed Council Citizen Monitoring Program
    - Santa Barbara Channel Keepers
    - Morro Bay Volunteer Monitoring Program
- California Forestry Association
- Center for Biological Diversity

Water quality data developed by internal programs (e.g., CCAMP) and provided by outside agencies resulted in significantly more information than was available during previous updates of the List of Impaired Waterbodies. The individual "fact sheets" (described below) for each assessed waterbody-pollutant combination contain specific references to the data that forms the basis for each proposed listing decision. The electronic versions of these fact sheets also contain Internet links to the files and documents containing the actual data and information used.

WATER QUALITY OBJECTIVES, CRITERIA AND EVALUATION GUIDELINES USED TO ASSESS THE ATTAINMENT OF WATER QUALITY STANDARDS

In development of the 2008 Integrated Report, staff used all numeric objectives from the Basin Plan and State-wide Ocean Plan in this assessment. The Basin Plan identifies specific water quality objectives for designated beneficial uses (Table 2-1 in CCRWQCB, 1994; 1995). The Basin Plan states that "surface water bodies within the Region that do not have beneficial uses

designated for them in Table 2-1 (of the Basin Plan) are assigned the following designations: Municipal and Domestic Supply, protection of both recreation and aquatic life uses. Staff interpreted this to include, at a minimum, the following beneficial uses for all waters without specific use designations: Municipal and Domestic Supply, Water Contact Recreation, Non-contact Recreation, Cold Freshwater Habitat and Warm Freshwater Habitat.

In addition, staff used several evaluation guidelines to interpret the Basin Plan narrative objectives in accordance with Section 6.1.3 of the Listing Policy, which states:

> *"Narrative water quality objectives shall be evaluated using evaluation guidelines. When evaluating narrative water quality objectives or beneficial use protection, RWQCBs and SWRCB shall identify evaluation guidelines…* (that) *…may be used if it can be demonstrated that the evaluation guideline is:*
>
> - *Applicable to the beneficial use*
> - *Protective of the beneficial use*
> - *Linked to the pollutant under consideration*
> - *Scientifically-based and peer reviewed*
> - *Well described*
> - *Identifies a range above which impacts occur and below which no or few impacts are predicted*
>
> *RWQCBs shall assess the appropriateness of the guideline in the hydrographic unit. Justification for the alternate evaluation guidelines shall be referenced in the waterbody fact sheet" (SWRCB, 2004).*

In addition to the specific water quality objectives identified in the Basin Plan, for screening and assessing data for potential 303(d) list changes, staff used evaluation guidelines (summarized in Tables 1-4) that provide adequate protection to the most sensitive designated beneficial use, consistent with the Listing Policy. The evaluation guidelines used include the following:

- Sediment Quality Guidelines for Marine, Estuarine, and Freshwater Sediments predictive of sediment toxicity, specifically the probable effects levels (PEL) published by MacDonald et al, 2000 (Table 1).
- Evaluation guidelines published by USEPA and OEHHA for the protection of human health from the consumption of fish and shellfish (Table 2).
- Evaluation Guidelines for Protection of Aquatic Life from Bioaccumulation of Toxic Substances published by the National Academy of Science (Table 3).
- Various evaluation values for the protection of aquatic life that met the requirements of the Listing Policy, including the 1-hour chlorpyrifos and diazinon average in fresh water systems (Sipmann and Finlayson,2000); optimum temperature range for growth & completion of life stages for rainbow trout (Moyle,1976); maximum turbidity concentrations to prevent reduction in juvenile salmonid growth due to inability to find food (Sigler et al.,1984); max concentration of water column chlorophyll (North Carolina Administrative code,2007), and Tolerable Daily Intake Value for microcystin (WHO,1999). (Table 4).
- California Nutrient Numeric Endpoint (NNE) technical approach (Creager, et al., 2006), including the California Benthic Biomass Spreadsheet Tool (Version 13, Tetratech, 2007). Staff identified 1.0 mg/L nitrate as N as a screening value to protect for aquatic life.

Interpreting Narrative Objectives for Biostimulatory Substances

The Basin Plan currently contains narrative language stating that "waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses." Excessive nutrient concentrations stimulate algal growth, which can create nuisance conditions for water use and recreation, but more importantly, can remove oxygen from water, creating conditions unsuitable for aquatic life. Waters that contain excessive algal growth are characterized by wide swings in dissolved oxygen concentrations, typically dropping below concentrations set to protect for aquatic life at night, and rising above fully saturated levels during mid-day.

California Numeric Nutrient Endpoint (NNE)

Tetratech developed the California Numeric Nutrient Endpoint (NNE) technical approach (Creager, et al., 2006) for the State Water Board, in order to interpret the biostimulatory narrative objective, and to support development of numeric criteria for nutrients to protect for aquatic life beneficial uses. The NNE approach provides background support for use of the associated California Benthic Biomass Tool v. 13 (Tetratech, February 2007), to predict in-stream benthic algal density and other metrics in response to a number of inputs. The Biomass Tool utilizes data inputs for nutrient concentrations, as well as for latitude, canopy cover, stream depth and velocity to generate several model outputs. These include predicted benthic biomass and chlorophyll *a* concentration for both cold and warm water streams. It also predicts the anticipated maximum oxygen deficit resulting from biostimulation. This is the maximum amount of dissolved oxygen expected to be removed from the water as a result of predicted algal growth.

Staff used data from CCAMP to establish an upper range for dissolved oxygen concentration, over which reference site oxygen concentrations rarely or never fell. Staff then examined the characteristics of data from sites that fell within cold and warm water oxygen reference ranges and showed no other evidence of biostimulation, to identify a proposed screening criterion for nitrate of 1.0 mg/L-N to protect for aquatic life uses. Staff used the Benthic Biomass Tool to further evaluate these sites in terms of predicted oxygen deficit and determined that an oxygen deficit of 1.25 mg/L represents a low level of risk for biostimulation.

Water Board staff screened our highest priority water bodies during development of the 2008 Integrated Report, using 1.0 mg/L nitrate as N as a criterion to protect for aquatic life beneficial uses. Staff cited other Biomass Tool outputs including predicted oxygen deficit, benthic algal biomass, and benthic chlorophyll a concentrations, widely ranging oxygen concentrations, high water column chlorophyll a concentrations and/or algal cover as supporting evidence of biostimulation. We will further evaluate this approach over the next two years and consider using it to develop Basin Plan objectives and to screen all water bodies for the 2010 Integrated Report. Staff includes a more detailed discussion of application of the NNE tool and the supporting model outputs for each water body in a CCAMP technical report in Appendix J (CCRWQCB, April 2009).

DEVELOPMENT OF THE PROPOSED CHANGES TO THE CENTRAL COAST REGION LIST OF IMPAIRED WATERBODIES

Listing Policy Approach

The Listing Policy (SWRCB, 2004) outlines a "weight of evidence" approach that provides the rules for making decisions based upon different kinds of data; an approach for a robust statistical analysis; and requirements for data quality, data quantity, and administration of the listing process. Decision rules for listing and delisting are provided for: chemical-specific water quality standards; bacterial water quality standards; health advisories; bioaccumulation of chemicals in aquatic life tissues; nuisance such as trash, odor, and foam; nutrients; water and sediment toxicity; adverse biological response; and degradation of aquatic life populations and communities.

Data Scanning and Upload Tools

Water Board Staff and Dave Paradies, of the Bay Foundation of Morro Bay, developed a data scanning tool to systematically compare all data to all criteria. The scanning tool generates all the information necessary to populate the fields required in the lines of evidence (LOE) for each waterbody-pollutant combination. Each LOE is specific to a data source, waterbody segment, beneficial use and pollutant. The data scanning tool generated over 11,500 LOEs. Staff electronically uploaded the LOEs to the California Water Quality Assessment (CalWQA) Database, saving significant time and avoiding data entry mistakes.

The scanning tool requires use of the SWAMP data format. Staff received the majority of data submitted during the solicitation period in SWAMP formats. Staff reformatted those data not submitted in SWAMP format, including the following: City of Watsonville, City of Santa Maria and Santa Barbara Channel Keepers. As an exception, staff did not use the data scanning tool to create LOEs for the pathogen indicator data from Central Coast beaches or the microcystin data from Pinto Lake.

Prior to uploading the LOEs to the CalWQA Database, staff evaluated the results of the scans to verify accuracy and completeness of the information contained within. Staff verified approximately one percent of all the LOEs to ensure that sample and exceedance counts were accurate and that all associated information and documentation was correct. For example, staff checked to ensure that the data scanning tool did not include replicate samples, quality control samples or data rejected during prior quality assurance checks. Staff quality checked the data scanning tool results for multiple waterbody segments and multiple pollutants.

Once all quality assurance checks were complete and staff observed no errors in the resulting scan, LOEs were uploaded to the CalWQA Database. Once uploaded, staff compared the results of the upload to verify accuracy and completeness of the information contained within. At this stage, staff also hand checked approximately one percent of all the LOEs to ensure that sample and exceedance counts were accurate and that all associated information and documentation was correct.

Fact Sheets

With the use of the data scanning tool, staff assessed all available data to determine if waterbody-pollutant combinations should be added to, or removed from, the List of Impaired Waterbodies. Staff developed a single fact sheet for each waterbody-pollutant combination, including those combinations that did not have evidence of impairment. Each fact sheet contains the final listing decision, the weight of evidence description and all associated LOEs. Each LOE is specific to a data source, pollutant, beneficial use and water quality criteria. Therefore, a single fact sheet can, and typically does, contain multiple LOEs.

All of the fact sheet information and beneficial use support ratings for assessed waterbodies are stored in the CalWQA database. The assessment fact sheets (contained in Appendix F), as well as the lists of waterbody segments in each Integrated Report category (contained in Appendices B through E), were produced directly from the CalWQA database's report functions. The electronic versions of the CalWQA fact sheets contain Internet links to the water quality objectives and evaluation guidelines documents, and to the documents containing the water quality data and information for each assessed waterbody segment.

To the extent information was available, each fact sheet contains the following:

1. A descriptive name of the waterbody segment
2. The name of the pollutant or condition
3. A brief description of the recommendation for listing status (e.g. List, Do not list, Delist)
4. A description ("weight of evidence"), summarizing the waterbody-pollutant combination, the lines of evidence and the portion of the Listing Policy used
5. A staff recommendation
6. Summaries of each LOE, in general each LOE contained descriptions of:
    A. The beneficial use(s) being addressed by data and information
    B. The matrix (e.g., water, sediment, or tissue)
    C. The water quality objective or water quality criterion
    D. The evaluation guideline used (if the water quality objective was narrative)
    E. The data or information used to assess water quality
    F. The spatial representation of the data and information
    G. The temporal representation of the data and information
    H. Data quality assessment
    I. Other information needed to summarize the data and information.

Methodology Used to Develop the 2008 List of Impaired Waterbodies

The Listing Policy (SWRCB, 2004) requires staff to categorize all waterbodies that do not meet water quality standards in one of three categories on the List of Impaired Waterbodies: (1) waterbodies still requiring a TMDL, (2) waterbodies being addressed by TMDLs and (3) waterbodies being addressed by action other than TMDLs.

Staff assessed data and information for waterbodies using the weight-of-evidence approach identified in the Listing Policy to evaluate whether the evidence supports placing waters on or removing waters from the section List of Impaired Waterbodies. Using the 2006 List of Impaired Waterbodies as a basis for this assessment, staff considered all waterbody-pollutant combinations that were not on the 2006 List (using the listing factors in section 3 of the Listing Policy). For these, the decision relationship text states, "this pollutant is being considered for placement on the List of Impaired Waterbodies ". Conversely, if data were reviewed for a

waterbody-pollutant combination on the 2006 List of Impaired Waterbodies, it was considered for delisting (using the delisting factors in section 4 of the Listing Policy). For these, the decision relationship text states, "This pollutant is being considered for removal from the section List of Impaired Waterbodies".

In developing Central Coast Region's listing recommendations, staff assumed the following:

1. The 2006 List of Impaired Waterbodies forms the basis for the 2008 list submittal.
2. The provisions of the Listing Policy would guide staff recommendations.
3. Waters that were previously removed from the List of Impaired Waterbodies either because a TMDL was completed or because another program was addressing the water quality problem are placed in the Water Quality Limited Segments Being Addressed category based on the original data and information used to delist and any additional data that has become available.
4. Staff developed fact sheets for all waterbody-pollutant combinations where data and criteria were available.
5. The Listing Policy specifically defines toxic pollutants as "priority pollutants, metals, chlorine and nutrients" and specifies use of the binomial distribution, as presented in table 3.1 of the policy, to determine listing status. Staff also included toxicity and microcystin toxicants for the purposes of this assessment.
6. The Listing Policy specifically defines conventional pollutants as "dissolved oxygen, pH and temperature" and specifies use of the binomial distribution, as presented in table 3.1 of the policy, to determine listing status. Staff also included salts (i.e. boron, chloride and sodium), TDS, conductivity, salinity, turbidity, chlorophyll a and pathogens for the purposes of this assessment.
7. Staff used provisions of Basin Plans, statewide plans, and other documents containing water quality standards as they are written. Staff did not make judgments during the list development process regarding the suitability, quality, or applicability of beneficial uses or water quality objectives.

General Pollutant Categories and Listing Clarifications

Staff, in coordination with other Regional and State Water Board staff, adopted the following approach to clarify listings for general pollutant categories. De-list general pollutant names (i.e. pathogens, metals, pesticides and nutrients) and re-evaluate all available data and information (including the basis of the original listing) for the specific pollutant of concern. For example, staff de-listed waterbody segment X for pathogens but listed waterbody segment X for both fecal coliform and *E. coli*. In the Central Coast Region, staff made exception to this rule if a TMDL is already adopted or if a TMDL is near completion and specifically references the listing for the general pollutant category. Fourteen of the 500 proposed new listings are due to pollutant name revisions.

Faulty Listings

During the development of the 2008 List of Impaired Waterbodies, all existing listings on the 2006 List of Impaired Waterbodies were reevaluated. In some cases, it was clear that the original data, guideline, or basis for the listing was "faulty" or the original analysis was flawed. The Listing Policy and federal regulation allows these kinds of listing errors to be corrected (see section 4 of the Listing Policy).

Federal regulation also allows states to remove waters from the List of Impaired Waterbodies for good cause. Federal regulation (40 CFR section 130.7(b)(6)(iv)) states:

> *"Upon request by the Regional Administrator, each State must demonstrate good cause for not including a water or waters on the list. Good cause includes, but is not limited to, more recent or accurate data; more sophisticated water quality modeling; flaws in the original analysis that led to the water being listed in the categories in §130.7(b)(5); or changes in conditions, e.g., new control equipment, or elimination of discharges."*

Water Board staff recommended removal of waterbodies and pollutants from the list if:

- The original listing was not justified by any data or the information justifying the original listing was anecdotal.
- The evaluation guideline used originally would lead to improper conclusions regarding the status of the waterbody segment (i.e. an evaluation guideline that does not satisfy the requirements of section 6.1.3 of the Listing Policy or was applied to the wrong matrix).
- The listing was applied to the wrong waterbody segment.
- The waterbody-pollutant combination was previously delisted.
- The analysis was based on faulty calculations (i.e. calculation of unionized ammonia without using pH measurements taken in the field).

Each fact sheet for faulty or flawed listing contains the justification for removal from the List of Impaired Waterbodies.

PROPOSED ADDITIONS, DELETIONS, AND CHANGES TO THE 2008 LIST OF IMPAIRED WATERBODIES

As part of the 2008 Integrated Report, staff assessed 345 waterbodies (including 77 beaches and 6 harbors) of the Central Coast region's 818 water bodies. Appendix A shows the proposed changes to the List of Impaired Waterbodies. The rationale for all listing or de-listing decisions are documented in "fact sheets" in Appendix F. More than 3700 fact sheets (listing decisions) were prepared in the development of the 2008 Integrated Report. Due to the amount of new data available, the numerous waterbodies and water quality issues in the Central Coast Region, the protective nature of water quality standards, and the requirements of the Listing Policy to evaluate all readily available data, there are 500 proposed new listings (total listings is 689). The total number of listings requiring a TMDL is 652. Staff is addressing 37 of these with TMDLs in development or already completed. In addition, there are 37 new de-listings (total de-listings is 51) and 2967 "do not list" decisions proposed.

The number of proposed new listings is likely not indicative of temporal trends in the overall water quality, since many of these waterbodies and pollutants have never been assessed before, and many of the newly identified water quality standards exceedances have likely been occurring for some time before being identified. Formal identification of the water quality problems by placing waters on the List of Impaired Waterbodies can be viewed as an early step in bringing waters into attainment of standards through watershed restoration efforts and the Water Boards' programs.

Summary of Proposed 2008 List of Impaired Waterbodies

Of the 689 proposed listings, more than 90% occur for a list of 20 pollutants, including:

- Fecal coliform (88)
- pH (55)
- E. Coli (53)
- Low dissolved oxygen (51)
- Nitrate (41)
- Sodium (40)
- Turbidity (38)
- Chloride (32)
- Sedimentation/Siltation (32)
- Unknown Toxicity (30)
- Chlorpyrifos (26)
- Enterococcus (21)
- Ammonia (Unionized) (20)
- Temperature, water (17)
- Nutrients (15)
- Pathogens (15)
- Sediment Toxicity (15)
- Total Coliform (14)
- Diazinon (13)

Results of the assessment indicate that a single Hydrologic Unit, Santa Lucia (Big Sur Coast, Monterey County), shows no evidence of impairment. Further examination of the proposed listings by hydrologic unit indicates that nearly 70% of the listings occur in four of the 13 Central Coast Region Hydrologic Units, including: Salinas River (168 listings), South Coast (117 listings, Santa Barbara County south coastal watersheds), Pajaro River (110 listings), and Santa Maria (89 listings). An assessment summary for each Central Coast Region Hydrologic Unit follows below.

304 - Big Basin (Santa Cruz County Coastal Watersheds)
Water Board staff assessed data for 55 creek and river segments, one harbor and 22 beaches in the Big Basin Hydrologic Unit, which includes the coastal watersheds of Santa Cruz County. Results of the assessment identified 65 listings on 32 different waterbody segments, including two beaches. Listings primarily including the following toxins: Chlorpyrifos and Nutrients; and conventional pollutants: Electrical Conductivity, *Enterococcus, E. Coli*, Fecal Coliform, Low Dissolved Oxygen, pH, Sedimentation/Siltation, Total Coliform and Turbidity. The waterbody segments with the most listings include Branciforte Creek (5 listings), San Lorenzo River and Lagoon (5 listings) and Soquel Creek and Lagoon (6 listings).

305 - Pajaro River
Water Board staff assessed data for 33 creek and river segments, four lakes and one beach in the Pajaro River Hydrologic Unit. Results of the assessment identified 110 listings on 27 different waterbody segments. Listings primarily including the following toxins: Chlorpyrifos, Microcystin, Mercury, Nitrate and Toxicity; and conventional pollutants: Boron, Chloride, Chlorophyll a, Electrical Conductivity, *E. coli*, Fecal Coliform, Low Dissolved Oxygen, pH, Sodium, Turbidity, Total Dissolved Solids and Water Temperature. The waterbody segments with the most listings include Llagas Creek (11 listings), Pajaro River (9 listings) and Miller's Canal (8 listings). One unique listing in this Hydrologic Unit is at Pinto Lake, for Microcystin toxins produced by cyanobacteria.

306 - Bolsa Nueva (Elkhorn Slough and Moss Landing Harbor)
Water Board staff assessed data for one creek, one harbor and four slough/estuaries in the Bolsa Nueva Hydrologic Unit, which includes the Moss Landing Harbor, Moro Cojo Slough and Elkhorn Slough watershed. Results of the assessment identified 35 listings with at least one listing on every waterbody segment assessed. Listings primarily include the following toxins: Ammonia, Chlorpyrifos, Diazinon and toxicity; and conventional pollutants: Chlorophyll a, *E. coli*,

Fecal Coliform, Low Dissolved Oxygen, pH and Turbidity. The waterbody segments with the most listings include Moss Landing Harbor (9 listings), Moro Cojo Slough (7 listings) and Carneros Creek (6 listings).

307 - Carmel River

Water Board staff assessed data for one creek and one river segment in the Carmel River Hydrologic Unit. Results of the assessment identified three listings, all for Tularcitos Creek. Listings were for Chloride, Sodium and Fecal Coliform. There is no evidence of impairment in the Carmel River, based on the available data for this assessment.

308 - Santa Lucia (Big Sur Coast, Monterey County)

Water Board staff assessed data for 21 creek and river segments and two beaches in the Santa Lucia Hydrologic Unit, which includes the coastal watersheds of Monterey County, south of the Carmel River watershed. There is no evidence of impairment for any waterbody in this Hydrologic Unit, based on the available data for this assessment.

309 - Salinas River

Water Board staff assessed data for 40 creek and river segments, one harbor, one lake and eight beaches in the Salinas River Hydrologic Unit. This Hydrologic Unit includes the Monterey peninsula, north of Carmel River watershed, as well as the Gabilan Creek watershed (which includes the Salinas Reclamation Canal and Tembladero Slough). Results of the assessment identified 168 listings on 30 different waterbody segments, including Monterey Harbor. Listings primarily including the following toxins: Ammonia, Nitrate, Chlorpyrifos, Diazinon, Metals, Legacy Pesticides and Toxicity in both the water column and sediments; and conventional pollutants: Boron, Chloride, Sodium, Chlorophyll a, Turbidity, Water Temperature, Low Dissolved Oxygen, Fecal Coliform, *E. Coli* and *Enterococcus*. The waterbody segments with the most listings (10 or more) include Chualar Creek (10 listings), Old Salinas River (11 listings), Quail Creek (11 listings), Tembladero Slough (13 listings), Salinas Reclamation Canal (14 listings) and Lower Salinas River (15 listings).

310 - Estero Bay (San Luis Obispo County Coastal Watersheds)

Water Board staff assessed data for 31 creek segments, two harbors and 25 beaches in the Estero Bay Hydrologic Unit , which includes the coastal watersheds of San Luis Obispo County. Results of the assessment identified 57 listings on 25 different waterbody segments, including four beaches. Listings primarily include the following toxins: Chlorpyrifos and Nitrate; and conventional pollutants: Chloride, Sodium, *Enterococcus*, *E. coli*, Fecal Coliform, Low Dissolved Oxygen, pH and Turbidity. The waterbody segments with the most listings include San Luis Obispo Creek (6 listings), Pismo Creek (5 listings) and Los Osos Creek (5 listings).

311 - Carrizo Plains (Soda Lake Watershed)

Water Board staff assessed data for Soda Lake in the Carrizo Plains Hydrologic Unit. Results of the assessment identified a single listing for ammonia in Soda Lake.

312 Santa Maria River

Water Board staff assessed data for 20 creek and river segments, one lake and one beach in the Santa Maria River Hydrologic Unit. This Hydrologic Unit includes the watersheds of Oso Flaco Lake, and the Cuyama, Sisquoc and Santa Maria Rivers. Results of the assessment identified 89 listings on 15 different waterbody segments. Listings primarily include the following toxins: Nitrate, Ammonia, Water and Sediment Toxicity, Chlorpyrifos, Diazinon, Dieldrin, and DDT; and conventional pollutants: Fecal Coliform, pH, Chloride, Boron, Turbidity, Low Dissolved

Oxygen, and Temperature. The waterbody segments with the most listings include Orcutt Creek (15 listings), Santa Maria River (13 listings), and Main Street Canal (8 listings).

313 - San Antonio Creek

Water Board staff assessed data for three creeks in the San Antonio Creek Hydrologic Unit. Results of the assessment identified 11 listings on all three creeks. Listings include the following toxins: Ammonia, Nitrate and Chlorpyrifos; and conventional pollutants: Boron, Chloride, Sodium, *E. coli*, Fecal Coliform, Low Dissolved Oxygen and Sedimentation. The three creeks and associated listings are San Antonio Creek (9 listings), Casmalia Canyon Creek (1 listing) and Shuman Canyon Creek (1 listings).

314 - Santa Ynez River

Water Board staff assessed data for five creek and river segments, and one beach in the Santa Ynez River Hydrologic Unit. Results of the assessment identified 21 listings on 6 different waterbody segments, including one beach. Listings primarily include the following toxins: Nitrate; and conventional pollutants: Chloride, Sodium, Total Dissolved Solids, *E. coli*, Fecal Coliform, Low Dissolved Oxygen, pH and Temperature. The waterbody segments with the most listings include Santa Ynez River Below Lompoc (9 listings), Santa Ynez River between Lake Cachuma and Lompoc (4 listings) and San Miguelito Creek (4 Listings).

315 - South Coast (Santa Barbara County South Coastal Watersheds)

Water Board staff assessed data for 28 creek and river segments, one harbor and 20 beaches in the South Coast Hydrologic Unit. This Hydrologic Unit includes all the coastal watersheds of Santa Barbara County, south of Santa Ynez Watershed. Results of the assessment identified 117 listings on 37 different waterbody segments, including 15 beaches. Creek listings primarily include the following toxins: Chlorpyrifos, Diazinon, Nitrate and Water-column Toxicity; and conventional pollutants: Boron, Chloride, Sodium, *E. coli*, *Enterococcus*, Fecal Coliform, Low Dissolved Oxygen, pH, Temperature and Turbidity. Beach Listings were for one or more pathogen indicators. The waterbody segments with the most listings include Atascadero Creek (8 listings) Arroyo Paredon, Glen Annie Canyon Creek, Rincon Creek and San Jose Creek (each with 7 listings).

317- Estrella River

Water Board staff assessed data for four creek and river segments in the Estrella River Hydrologic Unit. Results of the assessment identified 12 listings on two different waterbody segments. Listings primarily include the following conventional pollutants: Boron, Chloride, Sodium, Electrical Conductivity, pH, Fecal Coliform and *E. coli*. There are no listings for toxins in this watershed. The two waterbody segments with listings include Cholame Creek (7 listings) and Estrella River (5 listings).

Identification of Potential Sources

The Listing Policy requires staff to identify potential sources when adding a waterbody-pollutant combination to the List of Impaired Waterbodies. Staff chose potential sources from a standard list, provided by State Water Board. Staff identified potential sources in waterbody segments where staff had specific knowledge of land uses and discharges. In addition, staff consulted TMDL project reports and various land use maps to identify potential sources. Sources identified are potential and not based on a specific source identification analysis. Unless staff had specific knowledge of potential sources in a waterbody segment, staff chose “source unknown” as the default.

Summary of Potential Sources

Water Board staff identified at least one potential source for approximately 75% of the proposed listings (25% were identified as "source unknown"). Staff identified agriculture and urban storm water as the potential source for a majority of the listings. Nearly 60% of the listings identified agriculture as one of the potential sources and 41% identified urban storm water as one of the potential sources. Thirty-four percent of the listings identified both agriculture and urban storm water as a potential source. In addition, staff identified grazing as one of the potential sources for 31% of the listings.

TMDL Scheduling

Pursuant to federal requirements, Water Board staff identified TMDL completion dates for the listings identified as needing a TMDL. Staff reassessed the TMDL completion dates established in the 2006 List of Impaired Waterbodies and identified TMDL completion dates for the 2008 List of Impaired Waterbodies. In general, the Listing Policy (Section 5) specifies that staff consider the following criteria when recommending schedules for TMDL completion:

- Waterbody segment significance;
- Degree that water quality objectives are not met or beneficial uses are not attained;
- Degree of impairment;
- Potential threat to human health and the environment;
- Water quality benefits of activities ongoing in the watershed;
- Potential for beneficial use protection and recovery;
- Degree of public concern;
- Availability of funding; and
- Availability of data and information to address the water quality problem.

In addition to California's Listing Policy Guidance, USEPA guidance specifies that the maximum time between identifying a waterbody on the List of Impaired Waterbodies and TMDL completion should be 13 years. For the 2008 List of Impaired Waterbodies, the latest TMDL completion date is December 2021.

Considering the above-mentioned factors, and the need to address multiple listings within 13 years, Water Board staff revised the TMDL completion dates using the following approach.

High Priority Watersheds

Highest priority was given to TMDLs under way and near completion. This includes TMDLs in the Santa Cruz Coastal watersheds,Pajaro watershed, and and Santa Barbara beaches. Specifically, staff will complete TMDLs for pathogens in Aptos, Soquel and San Lorenzo watersheds by 2011 (total of 32 waterbody-pollutant combinations). Staff plans to complete TMDLs for Santa Barbara beaches by 2013 (total of 41 beach-pollutant combinations)..

In addition, staff identified the lower Salinas River watersheds and the lower Santa Maria watersheds as high priority. These watersheds have multiple impairments affecting a spectrum of beneficial uses, and the magnitude of exceedance of water quality objectives in these watersheds is great, relative to other watersheds.

The lower Santa Maria watersheds include the Santa Maria River and its tributaries downstream of the confluence with the Sisquoc and Cuyama Rivers, as well as the Oso Flaco Lake

watershed. In the lower Santa Maria watersheds, staff identified a 2013 TMDL completion date for all listings in this area. Staff may use a Watershed TMDL approach to maximize efforts to coordinate implementation and address multiple related and/or unrelated constituents in multiple waterbodies within the watershed (total of 82 waterbody-pollutant combinations). Staff anticipates this approach will fit well with the multiple listings in the lower Santa Maria watersheds and the TMDL development currently underway.

The lower Salinas River watersheds includes the Salinas River and its tributaries downstream of Gonzales, as well as the Tembladero Slough and the Salinas Reclamation Canal watershed. In the lower Salinas River watersheds, staff plans to continue development of TMDLs for pesticides, nutrients and pathogen-related listings and incorporate listings for aquatic life related pollutants (i.e. toxicity, dissolved oxygen, turbidity) by 2013. This will address 127 waterbody-pollutant combinations. Staff considers listings for salts and metals in the lower Salinas watersheds as medium priority and plans to address these separately by 2018.

Note that the high and medium priority listings together total over 200 pollutant-waterbody combinations. All other waterbody-pollutant combinations are considered low priority and have been assigned a TMDL completion date of 2021. Staff will revisit the list and prioritization during development of the high and medium priority listings. Therefore, low priority listings may be re-adjusted to high or medium in subsequent listing efforts. Proposed TMDL completion dates are summarized below:

TMDL Prioritization and Completion Dates

Priority	Watershed	Pollutant(s)	Date	Comment
High	Aptos Creek	Pathogens	2011	TMDL in Progress
High	Soquel Creek	Pathogens	2011	TMDL in Progress
High	San Lorenzo River	Pathogens	2011	TMDL in Progress
High	Santa Barbara Beaches	Pathogens	2013	TMDL in Progress
High	Lower Santa Maria	All	2013	Watershed TMDL
High	Lower Salinas	Nutrient, Pathogen, Pesticide & Toxicity	2013	TMDLs in Progress
Med	Lower Salinas	Salts & Metals	2018	
Low	Remaining waterbody-pollutant combinations	All	2021	

DETERMINATION OF BENEFICIAL USE SUPPORT AND INTEGRATED REPORT WATERBODY CATEGORIES

To meet CWA section 305(b) requirements of reporting on the water quality condition of waters, Staff assigned each identified waterbody segment to one of five non-overlapping beneficial use-support categories (based on USEPAs guidance for Integrated Report development). USEPA has identified six "core" beneficial uses and "other" beneficial uses. Core beneficial uses include:

1. Aquatic Life Support (COLD, WARM, SPAWN, MIG, WILD etc.)
2. Drinking Water Supply (MUN)
3. Fish Consumption (COMM)
4. Shell fishing (SHELL)
5. Swimming (REC-1)
6. Secondary Contact (REC-2)

For each core beneficial use associated with each waterbody segment, staff assigned one of three "Use Support Ratings" based on the readily available data and on proposed listing decisions: fully supporting, not supporting, or insufficient information. For a given waterbody segment and its combination of pollutant decisions, the use ratings result in the classification of the waterbody segment into one of 5 unique categories listed below.

Category	Description
1	Evidence shows all six core uses "Fully Supporting".
2	Evidence shows at least one core use "Fully Supporting" & no uses are impaired.
3	Evidence is insufficient to make use support determinations and no use is impaired, "Insufficient Information".
4A	Evidence shows at least one use not supported (but a TMDL is not needed). A TMDL has been developed and approved by USEPA and is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified time frame or "Not Supporting".
4B	Evidence shows at least one use not supported (but a TMDL is not needed). An existing regulatory program is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified time frame or "Not Supporting".
4C	Evidence shows at least one use not supported (but a TMDL is not needed). Impairment caused by non-pollutant sources or "Not Supporting".
5	Evidence shows at least one use "Not Supporting" (and a TMDL is needed).

Specific guidance to define the three beneficial use ratings (fully supporting, insufficient information and not supporting) was not available. Therefore, staff adopted the following procedure, based on the minimum sample counts required by the binomial distribution of the Listing Policy, to determine the use support ratings.

A. Use Rating = “Fully Supporting” if….
    a. Conventional Pollutants
        i. At least 26 samples and # of exceedances are less than the allowable frequency in Table 3.2 or 4.2 of the Listing Policy
    b. Toxic Pollutants (and Toxicity)
        i. At least 16 samples and # of exceedances are less than the allowable frequency in Table 3.1 or 4.1 of the Listing Policy

B. Use Rating = “Insufficient Information” if….
    a. Conventional Pollutants
        i. Less than 26 samples and # of exceedances less than the allowable frequency in Table 3.2 or 4.2 of the Listing Policy
    b. Toxic Pollutants (and Toxicity)
        i. Less than 16 samples and # of exceedances less than the allowable frequency in Table 3.1 or 4.1 of the Listing Policy

C. Use Rating = “Not Supporting” if…
    a. Conventional Pollutants
        i. Number of exceedances greater than the allowable frequency in Table 3.2 or 4.2 of the Listing Policy
    b. Toxic Pollutants (and Toxicity)
        i. Number of exceedances greater than the allowable frequency in Table 3.1 or 4.1 of the Listing Policy

Integrated Report Waterbody Categories

Staff categorized 329 waterbody segments in the preparation of this Integrated Report. Staff did not identify any waterbodies in Category 1, meaning none of the waterbodies assessed had sufficient evidence to demonstrate full support of all six core beneficial uses. Staff identified 76 waterbody segments in Category 2, indicating no documented impairment and a significant amount of evidence indicating attainment of at least one core beneficial use (or “Fully Supporting”). Category 3 includes 71 waterbody segments, which did not exceed standards, but lacked adequate data to determine overall attainment of beneficial uses. Categories 4 and 5 include waterbodies that have sufficient evidence to indicate impairment. Staff identified 7 Category 4A waterbodies which are listed as impaired, but already had TMDLs for all listed impairments (“Not Supporting but TMDL not needed”). Staff identified 175 waterbody segments in Category 5 (“Not Supporting and TMDL needed”).

SUMMARY AND OVERALL STRATEGY TO ADDRESS LISTINGS

In summary, as part of the 2008 Integrated Report, staff assessed 345 (including 77 beaches and 6 harbors) of the region’s 818 waterbodies to produce more than 3700 fact sheets and 11,500 lines of evidence that describe the water quality condition and relative impairment of waters in the Central Coast Region. As a result, staff proposed 689 listings and 51 de-listings. With so many listings, the Central Coast Water Board must consider a strategy to address the listings efficiently and effectively through on-going and innovative efforts.

Consistent with the Central Coast Water Board vision of Healthy Watersheds, staff is responding to the results of the 2008 Integrated Report by coordinating and focusing efforts on the highest water quality priorities to realize tangible results in water quality improvement.

Results of the assessment indicate that nearly 70% of the listings occur in 4 of the 13 Central Coast Region Hydrologic Units, including: Salinas River (168 listings), South Coast (117 listings, Santa Barbara County south coastal watersheds), Pajaro River (110 listings), and Santa Maria (89 listings). Evaluating the listings by pollutants, approximately 15% are bacteria listings, 13% are pesticide listings, and 11% are nutrient listings. Furthermore, staff identified agriculture and urban storm water as the potential source for a majority of the listings. Nearly 60% of the listings identified agriculture as one of the potential sources and 41% identified urban storm water as one of the potential sources. Thirty-four percent of the listings identified both agriculture and urban storm water as a potential source. In addition, staff identified grazing as one of the potential sources for 31% of the listings.

Based on these results, staff prioritized TMDL completion in the lower Salinas River and lower Santa Maria watersheds. In addition, staff is also working to increase the effectiveness of the Water Board's Agricultural Regulatory Program and the Storm Water Program, as well as focusing program efforts to address water quality issues in the Salinas and Santa Maria watersheds through deliberate program coordination.

Specific to agricultural sources of impairment, Water Board staff is preparing a revised Waste Discharge Order for irrigated agriculture with new requirements for pollutant control. Once adopted (planned for 2010), these requirements will apply to all irrigated agricultural dischargers in impaired watersheds. As the requirements are implemented, staff expects to see and measure pollutant loading decreases in the shorter term (one to five years) and improved water quality conditions in the longer term (five to twenty years). Water Board staff will focus compliance efforts in the highest priority watersheds where the impairment from agriculture is the most severe. In addition, staff has also identified irrigation efficiency and nutrient management as essential towards addressing multiple pollutants included in this listing (e.g. sediment, toxicity and nutrients) and is working with stakeholders to initiate implementation of a Central Coast Irrigation and Nutrient Management Program (CCINMP) with an intitial focus in the Salinas, Santa Maria, and Pajaro watersheds.

Specific to storm water sources of impairment, staff is focusing on enrolling municipalities in the state-wide General Municipal Storm Water Permit with Storm Water Management Programs that specifically address pollutants identified as causing impairments in nearby waterbodies. By the end of 2009, all of the municipalities in the Central Coast Region will be enrolled in the General Permit and required to implement and continue developing management practices to reduce pollution loading from storm water. Water Board staff will also focus compliance efforts for permitted municipalities in the high priority watersheds where the impairment is the most severe.

Staff is addressing pollution sources and watershed impacts from grazing and other livestock and domestic animal facilities on a watershed-by-watershed basis, where these activities have been demonstrated to be impairing water quality. Staff is initiating implementation programs for adopted TMDLs in the Pajaro River and Santa Cruz County coastal watersheds to establish reporting and monitoring of management practices to reduce pollutant loading from animal sources. Lessons learned from existing agricultural regulatory programs and these local implementation programs will be applied to similar impairment sources in other watersheds as TMDLs are developed.

Staff is also prepared to establish individual waste discharge requirements for or take enforcement action against any land owner or responsible party to eliminate or reduce non-point sources of pollution contributing to impairment.

Staff also recommends that the Water Board's Sustainable Land Management Vision Team continue to identify strategies that will result in coordinated efforts to advance water quality improvement in the lower Salinas and lower Santa Maria watersheds.

Staff also recommends that the Healthy Aquatic Habitat Vision Team works to identify strategies to focus the Water Board's watershed protection efforts on our highest quality waterbodies, such as those in the Santa Lucia Hydrologic Unit (Big Sur Coast, Monterey County).

FUTURE INTEGRATED REPORTS

This year marks the first Integrated Report prepared under the 2004 Listing Policy and USEPA Integrated Report Guidance for Clean Water Act Sections 303(d) and 305(b). Combining the updated List of Impaired Waterbodies with the 305(b) report added efficiency and ensured consistency, and provided challenges in terms of workload, project management, and level of detail. While individual assessments for potential listings provide valuable information for the 305(b) report, creating the overall 305(b) report using listing decisions as the primary input also has some limitations. Preparing assessment fact sheets at the level of detail required for the List of Impaired Waterbodies under the Listing Policy limits the amount of data, which staff can assess. The readily available data are often biased towards areas with more potential discharges, since these areas are where the bulk of the monitoring activity takes place. For these reasons, the number of waterbody segments in each Integrated Report category is not necessarily a representative sampling of all the waterbodies within the Central Coast Region.

Despite these limitations, this Integrated Report provides the most complete 305(b) report to date for the Central Coast Region. Future Integrated Reports could use statistical techniques such as random stratified sampling, or other means to make inferences about water quality in the many waterbodies where data are unavailable or insufficient to make direct, individual assessments of standards attainment. In addition, future integrated reports could provide more detail about the attainment of each core beneficial use, as opposed to one categorization based on all the core beneficial uses. The Water Boards' approach will continue to be refined in future Integrated Reports.

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TABLES

Table 1: Sediment Quality Guidelines for Marine, Estuarine, and Freshwater Sediments

Contaminant	Water Quality Guideline*
Anthracene	845 ug/Kg
Arsenic	33 mg/Kg
Benzo(a)anthracene	1,050 ug/Kg
Benzo(a)Pyrene	1450 ug/Kg
Cadmium	4.98 mg/Kg
Chlordane, Total	17.6 ug/Kg
Chromium	111 mg/Kg
Chrysene	1,290 ug/Kg
Copper	149 mg/Kg
DDT, Total	572 ug/Kg
Dieldrin	61.8 ug/Kg
Endrin	207 ug/Kg
Fluoranthene	2,230 ug/Kg
Fluorene	536 ug/Kg
Lead	128 mg/Kg
Mercury	1.06 mg/Kg
Naphthalene	561 ug/Kg
Nickel	48.6 mg/Kg
PAH, Total	22,800 ug/Kg
PCB, Total	676 ug/Kg
Phenanthrene	1,170 ug/Kg

*MacDonald et al., 2000

Table 2: Screening Values for the Protection of Human Health from the Consumption of Fish and Shellfish

Contaminant	OEHHA Screening Value [1]	EPA Screening Value [2]
Arsenic	1 mg/Kg	
Cadmium	3 mg/Kg	
Chlordane, Total	30 ug/Kg	
Chlorpyrifos	10000 ug/Kg	
DDT, Total	100 ug/Kg	
Diazinon	300 ug/Kg	
Dieldrin	2 ug/Kg	
Disulfoton	100 ug/Kg	
Endosulfan, Total	20000 ug/Kg	
Endrin	1000 ug/Kg	
Ethion	2000 ug/Kg	
Heptachlor Epoxide	4 ug/Kg	
Hexachlorobenzene	20 ug/Kg	
Lindane	30 ug/Kg	
Mercury, methyl	0.3 mg/Kg[3]	
Mirex		800 ug/Kg

Oxyfluorfen		546 ug/Kg
PAH, Total		5.47 ug/Kg
PCB, Total	20 ug/Kg	
Selenium	2 mg/Kg	
Terbufos		80 ug/Kg
Toxaphene	30 ug/Kg	

[1] Brodberg and Pollock, 1999; [2] USEPA, 2000b; [3] Klassing and Brodberg, 2004

Table 3: Wildlife Protection Criteria for Evaluation of Bioaccumulation Monitoring Data

Contaminant	Water Quality Guideline*
Aldrin	100 ug/Kg
Chlordane, Total	100 ug/Kg
DDT, Total	1000 ug/Kg
Dieldrin	100 ug/Kg
Endosulfan, Total	100 ug/Kg
Endrin	100 ug/Kg
Heptachlor	100 ug/Kg
Heptachlor Epoxide	100 ug/Kg
Lindane	100 ug/Kg
PCB, Total	500 ug/Kg
Toxaphene	100 ug/Kg

*NAS, 1972

Table 4: Water Quality Guidelines for the Protection of Aquatic Life

Contaminant	Water Quality Guideline
Chlorpyrifos	0.025 ug/L [1]
Diazinon	0.16 ug/L [1]
Water Temperature	21.0 ºC [2]
Turbidity(NTU)	25 NTUs [3]
Chlorophyll a	40 ug/L [4]
Microcystin	1.0 ug/L [5]

[1]Sipmann and Finlayson, 2000 (1-hour average in freshwater systems)
[2] Moyle, 1976 (optimum range for growth & completion of most life stages for rainbow trout)
[3] Sigler et al., 1984 (max concentration to prevent reduction in juvenile salmonid growth due to inability to find food)
[4] North Carolina Administrative code, 2007(max concentration of water column chlorophyll)
[5]WHO, 1999 (Tolerable Daily Intake Value)

APPENDICES

The appendices for the Central Coast Water Board's 2008 Integrated Report can be found at the following website:
http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/303d_list.shtml

Appendix A -Recommended Changes to the List of Impaired Waterbodies

Appendix B - Draft List of Integrated Report Category 2 Water bodies

Appendix C - Draft List of Integrated Report Category 3 Water bodies

Appendix D - Draft List of Integrated Report Category 4a Water bodies

Appendix E - Draft List of Integrated Report Category 5 Water bodies

Appendix F - Fact Sheets Documenting Listing Decisions

Appendix G - Fact Sheets Documenting Miscellaneous Changes to the List of Impaired Waterbodies

Appendix H - All References Used in Development of the 2008 Integrated Report

Appendix I - Data Solicitation and Public Notices

Appendix J - "Interpreting Narrative Objectives for Biostimulatory Substances Using the Technical Approach for Developing California Nutrient Numeric Endpoints", CCAMP Technical Report, April 2009.